

Remarks

Applicants respectfully request reconsideration of the rejection of the claims in view of the above amendments and the remarks set forth below. Claims 1, 3-7, 9-11 and 22 remain in the application. Claims 1 and 22 are amended. Claims 3-5, and 9-10 were previously presented. Claims 6, 7 and 11 remain unchanged. Claims 2, 8 and 12-21 are canceled. Claim 23 is new.

35 U.S.C. §103

Claims 1, 5-7, and 9-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Okoshi et al. in view of Hayworth et al. Under 35 U.S.C. § 103, the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to be obvious in light of the teachings of the references (MPEP § 706.02(j)).

The applicants respectfully traverse the rejection and submit the following for consideration by the examiner. Amended claim 1 recites, inter alia, a “motion sensor comprising . . . an assembly having suspension members, the suspension members isolating the assembly and components mounted on the assembly from vibrations and passing digital signals between at least one component mounted on the assembly and an external controller not mounted on the assembly . . . a vibrating member mounted on the assembly . . . a driver mounted on the assembly for driving the vibrating member . . . a sensor mounted on the assembly for detecting movement of the vibrating member in response to rotation of the assembly, the sensor outputting an analog signal responsive to the rotation of the assembly . . . and digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller.”

(Emphasis added). Support for the amendment to claim 1 is at least provided in FIG. 8, FIG. 13, and on page 10 lines 21-30 of the specification. The applicants propose that neither Okoshi, nor Hayworth, taken individually or in combination, show or suggest at least the “digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the-sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller” element of amended claim 1.

Okoshi appears to be directed at a motion sensor structure including a vibrating tuning fork and a sensor mounted on an assembly attached to a frame through a plurality of “Z” shaped members. The “Z” shaped members provide external shock resistance and also carry signals, including a drive signal for the tuning fork, to and from the assembly (column 5 line 35 to column 6 line 10). The assembly also includes an analog IC that only interfaces with the sensor and processes the sensor signal (column 3 lines 60-66). In contrast, claim 1 includes “digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the-sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller.” As acknowledged in the office action, Okoshi does not show a digital IC for providing a digital signal to an external computer. Further, applicants note that Okoshi also does not appear to show or suggest the “digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the-sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller” element of amended claim 1. Therefore, Okoshi does not show or suggest at least the “digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the-sensor, and transmitting, through at least one of the suspension

members, digital data indicative of the rotation of the assembly to the external controller”
element of amended claim 1.

Hayworth is relied on in the Office Action to overcome the deficiencies found in Okoshi. Hayworth appears to be directed at an electrostatic bias resonator gyroscope mounted on a base plate. Hayworth gives little detail (i.e. less than one full paragraph) on how to combine additional electronics with the resonator gyroscope. Hayworth merely discloses “that when combined with a low power digital control electronics application specific integrated circuit (ASIC) for much larger quantities, a very small navigation unit can be produced.” (column 5, lines 41-44). Hayworth does not appear to show or suggest the “digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller” element of amended claim 1. Indeed, Hayworth does not appear to include any teachings on how any electronics might be combined with the Hayworth resonator gyroscope, let alone the “digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members” element of claim 1. Therefore, Hayworth does not overcome the deficiencies found in Okoshi.

Applicants respectfully note that one of ordinary skill in the art would appear to have no motivation for combining Hayworth with Okoshi in the manner proposed by the examiner. Rather, the applicants respectfully propose that the rejection is the product of impermissible hindsight reconstruction based on selectively picking and choosing language found in one paragraph of Hayworth using applicants' disclosure as a blueprint. Therefore, Hayworth appears connected to Okoshi only through the teachings of the applicants' specification. A reconstruction based in the applicants' disclosure is not permissible as a rejection for obviousness under 35 U.S.C. § 103(a).

As a result, neither Okoshi, nor Hayworth, taken alone or together, show or suggest at least the “digital electronics mounted on the assembly and coupled to the driver, the sensor, and the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from the sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller” element of claim 1. Therefore it is respectfully proposed that the rejection of amended claim 1 under 35 U.S.C. § 103(a) is overcome in accordance with the above remarks and notice to that effect is earnestly solicited.

Claims 5-7 and 9-11 depend from amended claim 1 or depend from claims depending from amended claim 1, and should therefore also be allowable for the same reasons, as well as for the additional recitation contained therein. Applicants respectfully requests reconsideration of the rejection of the claims in view of the above remarks.

Claims 3, 4 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Okoshi et al. in view of Hayworth et al, and further in view of Hamisch et al. or Henderson et al. Claims 3 and 4 depend from amended claim 1 or depend from claims depending from amended claim 1, and should therefore also be allowable for the same reasons, as well as for the additional recitation contained therein. Independent claim 22 is amended to include elements similar to the elements of amended independent claim 1 and should therefore be allowable for the same reasons discussed above as well as for the additional recitations contained therein. Therefore, it is respectfully proposed that the rejection of claims 3, 4, and 22 for obviousness is overcome and notice to that effect is earnestly solicited.

New Claims

New claim 23 recites, inter alia, a “motion sensor comprising . . . an assembly having suspension members, the suspension members isolating the assembly and components mounted on the assembly from vibrations and passing digital signals between at least one component

mounted on the assembly and an external controller not mounted on the assembly . . . a vibrating member mounted on the assembly . . . a sensor mounted on the assembly for detecting movement of the vibrating member in response to rotation of the assembly, the sensor outputting an analog signal responsive to the rotation of the assembly . . . and digital electronics mounted on the assembly and coupled to the sensor and the suspension members, the digital electronics including a programmable digital accumulator that accumulates a programmable number of digital samples of the analog signal from the sensor and transmits, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller, the programmable number of digital samples from the analog signal allowing a flexible response time.” Support for the new claim can at least be found in claim 1 and on page 16 of the application. The applicants propose that at least the “digital electronics mounted on the assembly and coupled to the sensor and the suspension members, the digital electronics including a programmable digital accumulator that accumulates a programmable number of digital samples of the analog signal from the sensor and transmits, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller, the programmable number of digital samples from the analog signal allowing a flexible response time” element of new claim 23 is neither shown nor suggested in either Okoshi or Hayworth. New claim 23 should therefore be allowable and notice to that effect is earnestly solicited.

Conclusion

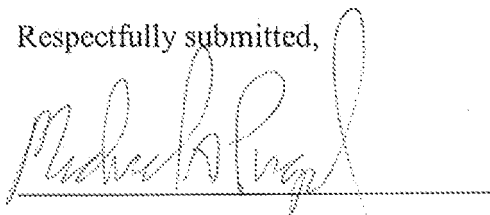
Having fully addressed the Examiner’s rejections it is believed that, in view of the preceding remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicants’ attorney at (317) 587-4027, so that a mutually convenient date and time for a telephonic interview may be scheduled.

Ser. No. 10/591,221
Customer No. 24498

PU040336

No fees, other than those discussed above, are believed due. However, if a fee is due, please charge the additional fee to Deposit Account 07-0832.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Michael A. Pugel", written over a horizontal line.

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April 20, 2009